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Explorations in the coastal plain of Georgia during the season of 1902

ROLAND M. HARPER

My explorations in Georgia in 1902, beginning at Augusta on June 5 and ending near the same place on November 16, were confined to those counties lying wholly or partly in the coastal plain. Notes and collections were made in the counties of Columbia (nos. *1294–1302*, *1310–1314* *), Richmond (*1303–1309*, *1315–1321*), Burke, Jefferson, Glascock (*1322–1326*), Washington (*1327–1331*), Johnson (*1332–1347*), Laurens (*1348–1373*), Dodge, Pulaski (*1374–1387*), Wilcox, Dooly (*1712*), Sumter (*1388–1406*, *1713–1731*), Marion (*1407–1410*), Schley (*1411–1413*), Irwin (*1414–1422*, *1702–1704*, *1708–1711*), Coffee (*1423–1463*), Appling, Pierce (*1464–1467*), Ware (*1468–1470*), Charlton (*1471–1516*, *1573–1577*), Wayne, Glynn (*1518–1537*), Camden (*1517*, *1538–1572*), Clinch (*1578–1580*, *1583–1585*), Echols (*1581–1582*), Lowndes (*1586–1615*), Brooks (*1616–1633*), Thomas (*1634–1639*), Colquitt (*1640–1676*), Berrien (*1677–1696*, *1699–1701*, *1705–1707*), Worth (*1697*, *1698*), Lee, Terrell, Randolph (*1732–1745*, *1758–1784*), Quitman (*1746–1757*), Clay (*1786–1793*), Webster, Stewart, Chattahoochee (*1794*, *1795*), Muscogee (*1796–1800*), Talbot, Taylor (*1801–1803*), Crawford (*1804*), Houston, Bibb (*1805–1808*), Jones, Wilkinson and Screven, approximately in the order named. Numbers *1294–1387* were collected in June, *1388–1463* in July, *1464–1585* in August, *1586–1701* in September, *1702–1793* in October, and *1794–1808* in November. One hundred and fifty-two numbers of bryophytes and thallophytes, which do not appear in the foregoing enumeration, were also collected.

My travels by rail within the state covered more than 1500 miles, less than 200 of which were the same as had been traversed the previous season. About 400 photographs of the vegetation and scenery were taken.

Whenever opportunity offered special attention was paid to the problem of determining the exact location of the fall-line, or inland boundary of the coastal plain. I ascended the Savannah, Ocmulgee, Flint and Chattahoochee Rivers and Rocky Comfort Creek (the latter in Glascock County) to beyond their intersections with this line, and also followed it pretty closely by rail through the counties of Muscogee and Talbot.

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* Numbers of the plants collected.

Many of the oldest and largest cities of the Middle and South Atlantic States are situated on this fall-line, which usually marks the head of navigation, and in many cases the greatest water-power, on the rivers which cross it. But botanists who have collected around these cities have almost invariably failed to indicate whether their plants came from the hill country above or the coastal plain below. From a phytogeographical standpoint this is a most serious omission, for the fall-line, throughout its length of hundreds of miles, is (in the words of Dr. McGee *) "one of the most strongly marked physiographic and cultural lines on the surface of the globe," and "the most important structural line of eastern United States." The rather vaguely defined "Austroriparian area" of some botanists — or rather biologists — is practically the coastal plain, and the boundary between that and the "Carolinian area" is simply the fall-line, the cause of which is purely geological, and not climatic.

It should not be inferred, however, that the fall-line is always so sharply defined as to be visible in the field at a single glance. On the contrary it cannot usually be definitely located within a mile or two, except along the larger streams. Nevertheless, it seems to be an impassable barrier for many species of plants; and the great difference in aspect of the topography and flora on opposite sides of this line is apparent to the most indifferent observer.

A few places of historical or geographical interest visited on this trip will now be mentioned.

In June I spent a week in the vicinity of Augusta, where the most interesting natural feature, to a botanist at least, is the sand-hills, so well known to winter visitors. These are part of a line of sandy elevations which extend along or near the fall-line from

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* Ann. Rep. U. S. Geol. Surv. 12^1: 356, 357. 1891. The introductory portion of this paper is recommended to the careful consideration of the reader.

central North Carolina to western Georgia, with some interruptions. Little is known of the origin and geological history of these fall-line sand-hills, and they deserve further study. Their flora is of course eminently xerophytic, but need not be discussed here.

Augusta was visited in the eighteenth century by Bartram and Michaux, and in the nineteenth by Baldwin, Croom, Leavenworth, Olney, Ravenel, McCarthy, Sargent, Small and other botanists. It is now the home of Mr. A. Cuthbert, the discoverer of several species new to science, with whom I had the pleasure of comparing notes. The influence of Michaux's work in this vicinity is strikingly shown by the fact that of the flora of these particular sand-hills most of the characteristic species and several of the genera were discovered and described by him.

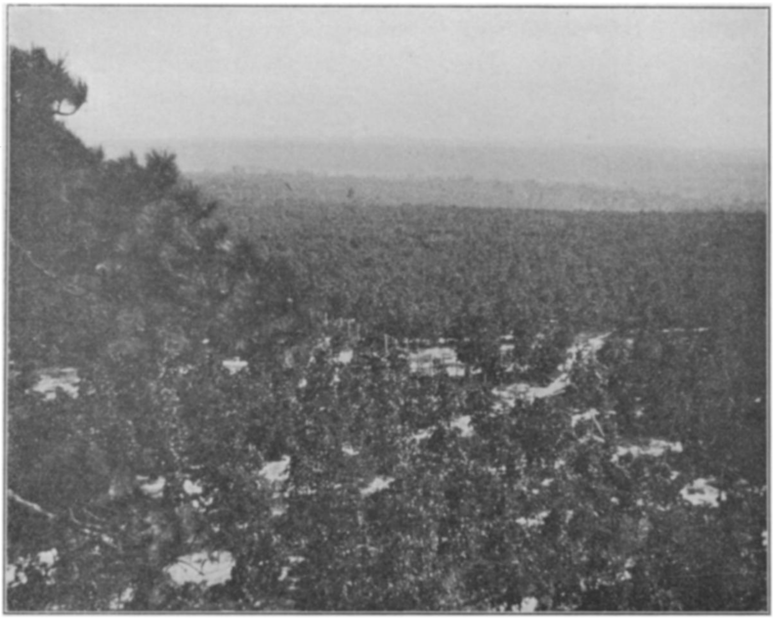

FIG. 1. General view of fall-line sand-hills near Augusta. June 8.

In November I examined other portions of the fall-line sand-hills, in the counties of Talbot, Taylor and Jones. The area in Talbot and Taylor Counties extends about twenty miles east and west and perhaps nearly as far north and south, but is little known.

Here the sand-hills rise to six or seven hundred feet above sea-level and considerably above the adjacent metamorphic hills. They are comparatively level, however, as is well illustrated at Tangent in Taylor County, where the railroad track is straight beyond the horizon in both directions. This region is sparsely settled, and its pine forests still furnish lumber and turpentine in merchantable quantities. The manufacture of turpentine here is of interest because a distance of at least fifty miles, including the whole width of the outcrop of the Eocene formations, intervenes between this and the pine-barren region where the rest of the turpentine of Georgia is now produced.

This western sand-hill area seems to have been first made known to science by Elliott. Bartram, who traversed these counties (or rather the area now included in them) in the summer of 1776, and again the following winter, must have passed just to the north of the sand-hills, for he does not mention them in his *Travels*. Elliott visited them early in the nineteenth century, and discovered there several new species, among them *Chrysopogon secundus*, *Thysanella fimbriata*, *Dicerandra linearifolia* and *Chrysopsis pinifolia*, * all of which I also saw in the same region. Elliott's route was along the "Federal Road," which runs along or near the fall-line and connects the present cities of Macon and Columbus (neither of which existed in Elliott's time).

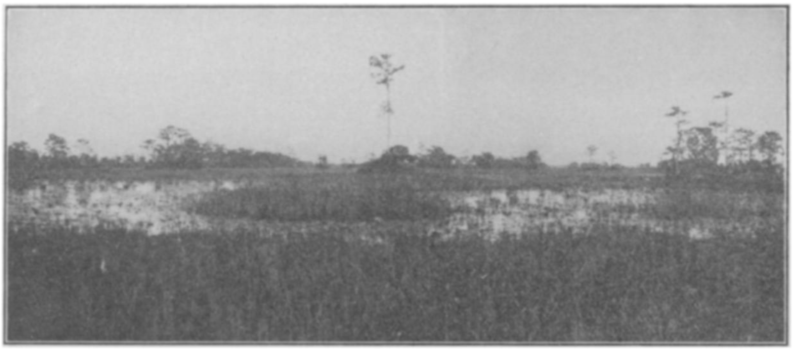

FIG. 2. Open portion of Okefinokee Swamp. August 7.

Since Elliott no botanist seems to have explored these western sand-hills except the late Dr. Hugh M. Neisler, who lived for many years in Butler, the county-seat of Taylor County, and sent specimens from there (many of which are now preserved in the Torrey Herbarium) to Dr. Torrey. At Reynolds, in the same county, I met a grandson of Dr. Neisler, who took me to another historic spot, the site of the Indian Agency at the crossing of the Federal Road and Flint River, where Dr. Baldwin spent several weeks in the spring of 1812.* The two species which Dr. Baldwin discovered here I was unable to find. But on the river bank just above the Agency (and at or near the fall-line) I saw growing in intimate association *Hydrangea quercifolia* and *Hypericum aureum*, both of which were discovered within a few miles of this place by Bartram in July, 1776, the former east of the river and the latter west. Both were also noted near the Agency by Dr. Baldwin.

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* See Bot. S. C. & Ga. 1 : 580, 583 ; 2 : 94, 335.

In June I explored portions of the sand-hills of the Oconee and Ocmulgee Rivers, opposite Dublin and Hawkinsville respectively. These river sand-hills are probably of a different origin from the fall-line sand-hills, but their flora is similar in composition and almost identical in aspect. Analogous sand-hills occur along the left sides of many other streams in Southeast Georgia, but are rare in Southwest Georgia and seem to be unknown in Alabama.

In August I spent two days (6th to 8th) in Okefinokee Swamp (which is mostly in Charlton County), in company with Mr. P. L. Ricker, of the U. S. Department of Agriculture. Okefinokee Swamp differs materially from the two other great swamps of the eastern United States (Dismal Swamp and the Everglades) in being about 50 miles inland and over 100 feet above sea-level, but it has several features in common with each. No account of the flora of Okefinokee has ever been published, but space will not permit a detailed description here. The swamp, although exceedingly interesting phytogeographically, seemed to contain no endemic species of flowering plants. About 75 species were observed, but this may not be over half the total number in the swamp.

Later in the same month we visited two islands on the neighboring coast, both now favorite summer resorts: St. Simon's, in Glynn County, and Cumberland, in Camden. These islands were visited in the eighteenth century by Bartram and Michaux, but seem to have been untouched in the nineteenth by all botanists except Dr. Baldwin, who visited Cumberland occasionally during the few years of his residence at St. Mary's, on the adjacent mainland. Some portions of Cumberland island rise about 50 feet above sea-level, which is higher than most, if not all, of the other islands along the Georgia coast, and probably as high as any part of the mainland of Camden County. The floras of the two islands are remarkably different, considering their proximity to each other and to the mainland.

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* See Reliq. Baldw. 58–62 *et seq.*

On September 4 I visited two interesting bodies of water in the southern part of Lowndes County, near Lake Park. Ocean Pond, the larger of the two, is said to be about two miles in diameter, and is probably the largest pond in the state. But, strange to say, for over fifty years it has been represented seven or eight miles from its true position on all maps of the state which show it at all. Its water is quite clear and the shore mostly sandy, like that of Open Pond in Decatur County,* which I visited the summer before. Among other interesting plants seen in Ocean Pond and along its shores were *Sagittaria isoetiformis*, *Hydrochloa fluitans*, *Eriocaulon septangulare* (*no. 1608*), *Lachnocaulon Beyrichianum* (*no. 1607*), *Polygonum hirsutum* (*no. 1609*), and *Nymphaea orbiculata* (*no. 1610*).

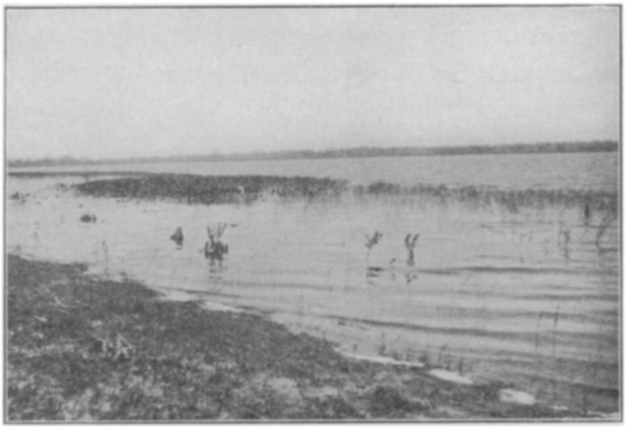

FIG. 3. Ocean Pond, Lowndes County. September 4.

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* See Bull. Torrey Club, 30: 290. My 1903.

Long Pond, about a mile away, is about half as large as Ocean Pond. Its water is also clear, but it has no shore (at least on the side examined), being bordered by a fringe of cypress swamp. It is analogous in many ways to Cane Water Pond in Decatur County.* In Long Pond I collected an apparently undescribed species of *Nymphaea* (*no. 1611*). These two ponds, like the two similar ones in Decatur County, are partly surrounded by dry sandy areas characterized by *Eriogonum tomentosum* and other xerophytes.

Toward the end of the same month I revisited the type locality of *Rhynchospora solitaria* and *Baldwinia atropurpurea*, the two species which I discovered in Tifton two years before. The locality (a characteristic area of primeval moist pine barrens) is so near the center of the city that it is in imminent danger of destruction by the encroachments of civilization, but fortunately both species are common enough elsewhere in the same and adjoining counties.

In October I studied portions of Randolph, Clay and Quitman Counties, in the Cretaceous and Eocene regions, making headquarters at Cuthbert for about three weeks. Cuthbert is one of the oldest cities in southwest Georgia, but seems never to have been visited by a traveling botanist before, though there was resident in the city at that time an enthusiastic amateur, Rev. C. H. Hyde, to whom I am indebted for his hospitality and for guiding me to many interesting places in the vicinity.

Cuthbert, though south of latitude 32°, has an elevation of nearly 500 feet and is several miles outside of the pine-barrens, in a region of red hills not unlike some of those in Middle Georgia. *Pinus palustris* seems to be entirely absent from a considerable area (whose limits have not yet been accurately determined) around Cuthbert and extending through several counties, where *P. echinata* takes its place.

On steep shaded hillsides and in rich ravines in this part of the state, where the original forest has not been destroyed, plants of more northern range abound, and I was continually surprised at finding such species as *Adiantum pedatum*, *Phegopteris hexagonoptera*, *Brachyelytrum erectum*, *Vagnera racemosa*, *Polygonatum biflorum*, *Uvularia perfoliata*, *Trillium erectum*, *Pogonia verticillata*

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* See Bull. Torrey Club, **30** : 290. My 1903.

(*no. 1762*), *Sanguinaria Canadensis*, *Actaea alba*, *Xanthorrhiza apiifolia*, *Hydrangea arborescens*, *Viola tripartita glaberrima*, *Dirca palustris* (*no. 1790*), *Panax quinquefolium*, *Kalmia latifolia* and *Phryma Leptostachya*, associated with coastal plain types like *Pinus glabra*, *Rhapidophyllum Hystrix* and *Magnolia grandiflora*. Other very interesting plants were found on the banks of the Chattahoochee River near Georgetown (in the Cretaceous region) and Fort Gaines (Eocene).

On October 23, in company with Mr. Hyde, I visited a cave (known as Grier's Cave), in Randolph County, about ten miles north of Cuthbert. Over several acres around this cave a compact limestone of the Midway or Clayton period (lowest Eocene) crops out in huge boulders and ledges, and supports a deciduous forest containing a great variety of herbs as well as trees. The aspect of the place is much like that of the Mountain Limestone area at the north end of Pigeon Mountain in Walker County,* and some species are common to the two places. An interesting feature of the flora of the rocky woods around Grier's Cave is the large number of plants with barbed fruits, adapted for dissemination by animals. Representatives of at least six families with this adaptation were observed.

The following species of more than ordinary interest were collected or observed in 1902:

ADIANTUM PEDATUM L.

Grows luxuriantly on the steep shady north side of a high bluff along Samochechobee Creek in Clay County, where I collected it on October 28 (*no. 1786*). This locality (in latitude 31° 38′) is, I believe, considerably farther south than any other known for this species, and is the only one known in the coastal plain in Georgia and adjacent states.

ADIANTUM CAPILLUS-VENERIS L.

Very abundant on the perpendicular rocky walls (Eocene) of the same creek near its confluence with the Chattahoochee River just above Fort Gaines. Seen also on the bluff of the river itself at Fort Gaines, and just above Georgetown, where I collected it on overhanging Cretaceous rocks on October 16 (*no. 1756*).

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* See Bull. Torrey Club, **28**: 456, 482. 1901.

ERAGROSTIS AMABILIS (L.) Wight & Arn.; Hook. & Arn. Bot. Beechey, 251. 1841

In the BULLETIN for July, 1902, Scribner and Merrill have reported the occurrence of this Asiatic ornamental grass in Middle Florida. In September I found it quite common as a weed along moist roadsides and railroad ditches in the vicinity of Quitman (*no. 1616*) and Moultrie. There is nothing in its mode of occurrence to suggest its having escaped from cultivation (if indeed it has ever been cultivated in that part of the country) and it seems to be thoroughly naturalized.

ERAGROSTIS SIMPLEX Scribn. Bull. Div. Agrost. U. S. Dept. Agric. No. 7, ed. 3, 250. 1900

"*E. Brownei* Nees" of Chapman and several other authors.

A weed of unknown origin which is common along most railroads in South Georgia, especially in the pine-barren region. Collected in Colquitt County, September 22 (*no. 1656*). Previously reported only from Florida.

FIMBRISTYLIS PERPUSILLA Harper; Small, Fl. S. E. States, 188. 1903

Although this species has already been described, it has several peculiarities which could not be mentioned in the limited space of the original description.

The plant was collected (in flower) on the muddy bottom of a dried-up pine-barren pond near Leslie, Sumter County, on the morning of October 9 (*no. 1729*). It was very abundant, but so small as to be scarcely visible to a person standing up. Its only associates visible to the naked eye were two bryophytes, *Riccia Sullivantii* and *Ephemerum tenerum*, the latter almost microscopic. The vegetative period of the *Fimbristylis* must be very brief and irregular, for the pond in which it grows cannot be expected to dry up at the same time every year, and there may be years in which it does not dry up at all.* In this respect our

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*On July 13, 1903, I revisited the type-locality and found it covered by about three feet of water. No trace of the *Fimbristylis* could be found in several handfuls of mud taken from the bottom.

plant is inversely analogous to some species of *Isoetes* (*I. melanospora* and *I. Orcuttii*, for instance), which grow in shallow depressions on rocks and vegetate only in wet seasons.

Fimbristylis perpusilla is one of the smallest and simplest species of the genus, but it is too different from the other species occurring in the vicinity to be regarded as a depauperate form of any of them and besides the specimens were perfectly healthy and vigorous, *F. autumnalis* sometimes finds its way into pine-barren ponds as they dry up in summer or fall, but in so doing it changes none of its characters. A depauperate form of *F. Frankii* (also associated with a *Riccia*) has been found by Mr. A. A. Eaton on muddy shores of a pond in Kingston and East Kingston, N. H., but it is quite different from my plant.

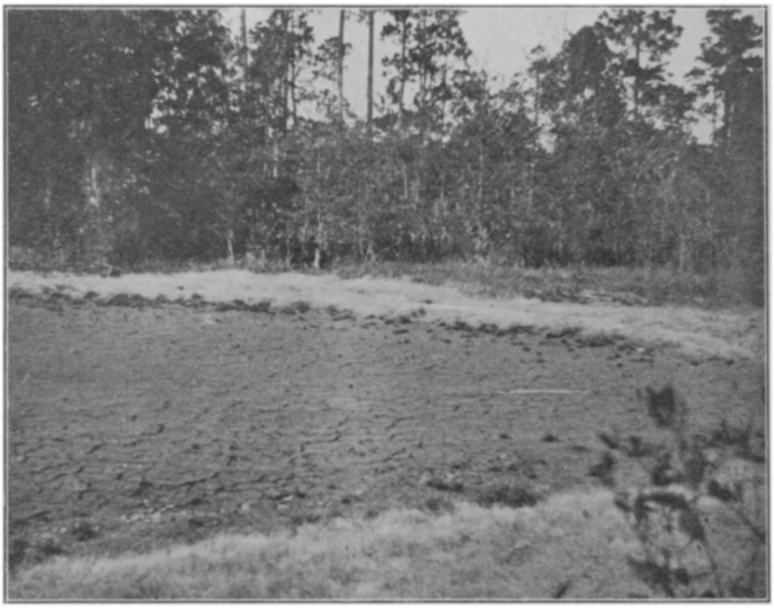

FIG. 4. Type-locality of *Fimbristylis perpusilla*, near Leslie, Sumter County. October 9.

By its floral characters *F. perpusilla* seems nearest related to *F. Vahlii*, but in that species (which is not known in Georgia) the culms are densely tufted and erect or nearly so, and the spikelets are all sessile, while in *F. perpusilla* the culms (8 or 10 to each plant) are prostrate, and of the 3 to 6 spikelets in each umbel some are sessile and some on peduncles 1–4 mm. long. (That part of the original description conflicting with this is erroneous.)

Mr. M. L. Fernald has suggested the resemblance of my plant to *F. dipsacea* (Rottb.) B. & H., an Asiatic species, but this resemblance is probably only accidental. *F. dipsacea* has been treated as the type of a distinct genus (*Echinolytrum* Desv.), on account of some peculiarities of its achenes, which find no parallel in my plant. It should be borne in mind that nearly all the pine-barren plants are endemic species, so that the probability of one of them being identical with an Asiatic species is very small. And there is not the slightest possibility of my plant having been introduced.

RHYNCHOSPORA SOLITARIA Harper, Bull. Torrey Club, 28: 468. 1901

Collected again at the type-locality in Tifton, September 26 (*no. 1677*); also seen in similar situations in Colquitt County a few days earlier and in Irwin County a few days later. Since seeing this species in the field again I can now indicate its affinities with more certainty. It seems nearest related to *R. ciliaris* (Michx.) Mohr (*R. ciliata* Vahl), from which it differs principally in being more slender and glabrous, with longer erect leaves, narrower spikelets and longer perianth bristles, and in its later flowering period. These two species, together with *R. Baldwinii*, seem to form a small natural group. If my view is correct *R. solitaria* is not a near relative of *R. Tracyi* (which is scarcely a true *Rhynchospora*), which it immediately follows in Dr. Small's Flora.

RHAPIDOPHYLLUM HYSTRIX (Pursh) Wendl. & Drude

This, one of the rarest of our palms, I first found in rich shady woods northwest of Cuthbert, on October 21 (*no. 1769*). Here there were only a few specimens, but a few days later I found it more abundant in similar situations along Samochechobee Creek in Clay County.

This species seems to have been previously known in Georgia only from the type-locality, "near the town of Savannah," but I am not aware that any botanist now living has seen it in that part of the state.

LACHNOCAULON BEYRICHIANUM Sporleder; Koernicke, Linnaea, **27**: 597. 1854

In rather dry pine-barrens near the eastern edge of Okefinokee Swamp in Charlton County, August 9 (*no. 1491*); also above high-water mark on the sandy shore of Ocean Pond, Lowndes County, September 4 (*no. 1607*). Previously known in Georgia only from the type-locality, "ad ripas paludum prope Ebenezer," where it was discovered by Beyrich about seventy years ago. Dr. Morong, in his remarks on this species,* erroneously places Ebenezer in Middle Georgia. The original Ebenezer, visited by Beyrich, was on the Savannah River in Effingham County, but is now extinct or nearly so. In later years there have been two or three other Ebenezers in Georgia, and it was probably one of these which misled Dr. Morong.

ERIOCAULON TEXENSE Koernicke, Linnaea, **27**: 594. 1854

Collected on July 2 in flat pine-barrens near Huntington, Sumter County, in a place which was quite dry at the time, but becomes a shallow pond in wet weather (*no. 1395*). Previously known only from Texas. (The reference to Florida under this species in Dr. Small's Flora is an error, probably typographical, Georgia having been intended.) This species is about intermediate in appearance between *E. compressum* and *E. decangulare*, and if it has been seen elsewhere in the East it has probably been mistaken for one of these other species.

TRADESCANTIA COMATA Small

In rich woods on Germain's Island in the Savannah River, Columbia County, 15 or 20 miles above the fall-line, June 7 (*no. 1296*). Altitude about 175 feet. Previously reported only from the mountains.

JUNCUS BRACHYCARPUS Engelm.

In river-bottoms near the same island, collected on the same day (*no. 1295*). Very few stations for this in the Southeastern States are known, probably no other in Georgia.

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* Bull. Torrey Club, **18**: 361, 362. D 1891.

MELANTHIUM DISPERSUM Small

Several specimens collected in a sandy bog in the pine-barrens east of Folkston, Charlton County, in full bloom on the morning of August 12 (*no. 1506*). Previously known only from a single imperfect specimen from Walton County, Florida, collected by A. H. Curtiss in 1885. *M. Virginicum*, its nearest relative, flowers a month or two earlier in Georgia.

UVULARIA FLORIDANA Chapm. (*Oakesiella Floridana* Small)

Not rare, in rich damp woods, Dublin, Laurens County, with full-grown fruit in June (*no. 1363*). Seen in October in similar situations near Cuthbert. The fruit, which has not hitherto been described, furnishes additional characters for distinguishing this species from its congeners. The capsule is always acuminate, tapering into a short beak, instead of being obtuse as in the two related species, *U. puberula* and *U. sessilifolia*. The bracted peduncle mentioned by Chapman, but overlooked by Small, seems to be also a perfectly constant character which is not shared by the other species.

CROOMIA PAUCIFLORA (Nutt.) Torr.

Collected in rich shady woods on the bank of the Chattahoochee River in Quitman County, October 16 (*no. 1757*), with flowers and fruit all gone. This is doubtless the only station in Georgia now known for this rare plant. Its resemblance to *Smilax ecirrhata*, which grows with it, is striking.

SALIX FLORIDANA Chapm.

I refer tentatively to this almost unknown species specimens collected in wet woods at the outer (eastern) base of the sand-hills of the Ocmulgee in Pulaski County below Hawkinsville, June 27 (*no. 1381*). My specimens were slender erect trees about ten feet tall and two inches in diameter, with tasteless bark roughish below and smooth above. The twigs were very brittle not only at the bases but throughout. No trace of fruit was found, but my material, as far as it goes, seems to be a perfect match for the type-specimen in the Torrey Herbarium, collected by Dr. Chapman in West Florida.

QUERCUS MYRTIFOLIA Willd.

Abundant on the driest sand-hills of the Satilla River in Pierce County near Waycross, where with other shrubby plants (and no herbs or trees) it forms almost impenetrable thickets six to ten feet high and of unknown extent (*no. 1466*). This locality is about 60 miles inland and 100 feet above sea-level. On August 19 I collected the same oak in a thicket of similar aspect, but somewhat different composition, in the interior of Cumberland Island (*no. 1540*). This species strikes me as being much more closely related to *Q. nigra* L. (*Q. aquatica* Walt.) than to *Q. Virginiana*, of which it was long considered a variety.

POLYGONUM ARIFOLIUM L.

In the swamp of the Satilla River in Camden County opposite Woodbine, within the influence of tide, but in fresh water, August 23 (*no. 1563*). My specimens are all sterile. Previous records of the occurrence of this species as far south as the coast of Georgia seem to be lacking. With it I found among other things *Juncus Canadensis* J. Gay, which was also a novelty in these parts.

MAGNOLIA MACROPHYLLA Michx.

This tree is common in rich woods along Samochechobee Creek all the way across Clay County (*no. 1793*), but I have never met with it elsewhere.

SARRACENIA FLAVA × MINOR Harper, Bull. Torrey Club, **30**: 332. Je 1903

Although described from a single specimen, this hybrid seems to be not particularly rare or evanescent. In July, 1902, I found (and photographed) several specimens within a few feet of each other in wet pine-barrens in Douglas, Coffee County (*no. 1437*). Here, as at the type-locality (about sixty miles distant) both parents were growing in the immediate vicinity. The hybrid has shown no tendency to flower yet.

SARRACENIA PURPUREA L.

After looking in vain for this species in Georgia for several years, I found a quantity of it in a sandy bog in Randolph County not far from Coleman (which is several miles outside of the pine-barrens) on October 28 (*no. 1783*). About the same time Mr. Hyde obtained a flowering specimen collected by the late Mrs. Sarah Thompson in Lee County, May 11, 1895.

Dr. Mohr in his "Plant Life of Alabama" says nothing about this species being rare in that state, but it is certainly rare in Georgia, and very few stations for it are known in the other southern states. All of the seven known species of *Sarracenia* have now been found in the coastal plain of Georgia. With the possible exception of Florida, no other state is known to contain them all.

CHRYSOBALANUS OBLONGIFOLIUS Michx.

Specimens collected in Coffee County on July 22 (*no. 1433*) showed a variation apparently hitherto unknown in this species and the genus and family to which it belongs. Many of the flowers had two or three carpels, and several specimens showed both or all three well on the way to maturity. The plants were perfectly normal in other respects, and there is no reason for supposing the extra number of carpels a freak. It is simply a variation which has been overlooked.

CUBELIUM CONCOLOR (Forst.) Raf.

Common on the bank of the Savannah River on Germain's Island, Columbia County (in the metamorphic region), June 7 (*no. 1297*). Also seen among limestone rocks in woods near Grier's Cave, Randolph County, October 23. Not previously reported from Georgia. My specimens differ from those which have been described, in being glabrous throughout, but seem to be otherwise identical.

ERYNGIUM LUDOVICIANUM Morong (*E. integrifolium Ludovicianum* C. & R.)

Observations on this species during the season convince me that it is specifically distinct from *E. integrifolium* Walt. (*E. virga-*

tum Lam.). While the two species are similar in habitat, their ranges are different. Near the southern border of the state, in the counties of Lowndes, Brooks and Thomas, *E. integrifolium* alone occurs, while fifty miles farther north, in the vicinity of Tifton, I have seen only *E. Ludovicianum.* But around Moultrie, an intermediate point, both species occur, often together, without showing any tendency to intergrade.

E. integrifolium has much the wider range, even in Georgia, where it is found in the metamorphic region as well as in the coastal plain. It is represented by *no. 1612*, from Valdosta, September 5, and *E. Ludovicianum* by *no. 1664*, from Colquitt County, September 24.

PANAX QUINQUEFOLIUM L.

In rich shady woods northwest of Cuthbert, Randolph County; also on the high bluff along Samochechobee Creek in Clay County. Rarely found so far south, these localities being below latitude 32°. I have heard several rumors of the occurrence of this much-sought plant elsewhere in the coastal plain, but most of these on being investigated prove to be based on *Tetragonotheca helianthoides* L., a totally dissimilar plant which in some unaccountable way has also received the name of "ginseng," * and moreover is said to possess valuable medicinal properties, being "good for rheumatism."

CHIMAPHILA MACULATA (L.) Pursh

A few specimens seen on September 29 in rich woods near Little River southwest of Tifton, Berrien County. This species does not seem to have been found so far south before.

ANANTHERIX CONNIVENS (Baldw.) Feay; Wood, Class Book, 594. 1861

The authorship of this combination is usually credited to Gray (Proc. Am. Acad. **12**: 66. 1876), but it was published in Wood's Class Book several years earlier. I collected this species in full bloom in wet pine-barrens in Coffee County near Douglas, July 18 (*no. 1426*), and observed it in similiar situations in several other

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* This fact was noted by Messrs. Pollard and Maxon in 1900. See Plant World, 3: 142. S 1900.

Southeast Georgia counties. It seems to be always scarce, rarely more than three or four specimens being visible at once.

DICERANDRA ODORATISSIMA Harper, Bull. Torrey Club, **28**: 479. 1901

Collected on the sand-hills of Little River southwest of Tifton, Berrien County, September 30 (*no. 1695*). At this station, which is probably near the western limit of the species (sand-hills being rare farther west), the plants are much less abundant and vigorous than at the type-locality, forty miles farther east.

GERARDIA GEORGIANA C. L. Boynton, Biltmore Bot. Stud. **1**: 148. 1902

Collected in rather dry pine-barrens around a small pond in Thomas County south of Thomasville on the morning of September 19 (*no. 1637*). Intimately associated with *G. paupercula* (Gray) Britton (*no. 1638*), which it much resembles, though this is not necessarily its nearest relative. Previously known only from the type-locality, near Cordele. One character overlooked by the author is that the corolla of *G. Georgiana* is spotless. I find that the markings of the corollas in *Gerardia*, which can be studied to advantage only in living specimens, often afford valuable diagnostic characters.

GERARDIA FILICAULIS (Benth.) Chapm.

Seen only in rather dry grassy pine-barrens near Tyty, Worth County, on the morning of September 30 (*no. 1698*). Fairly abundant but very inconspicuous. Not previously reported north of Florida.

LOBELIA FLACCIDIFOLIA Small

Collected in the swamp of Cedar Creek near Wrightsville, Johnson County, in flower June 16 (*no. 1341*), also in the swamp of Ochlocknee Creek near Moultrie, Colquitt County, September 25 (*no. 1676*). Flowers earlier than most species of *Lobelia*.

EUPATORIUM INCARNATUM Walt.

Seen only in the rocky woods near Grier's Cave, Randolph County, in flower October 23 (*no. 1771*). Probably not known elsewhere in Georgia. Dr. Mohr reports but one station for it in Alabama.

CHRYSOPSIS PINIFOLIA Ell.

On the fall-line sand-hills near Butler, Taylor County, November 6 (*no. 1802*). The only earlier specimen I have seen was collected by Elliott himself in the same region. This species becomes stoloniferous late in the season, a fact which has not been noted before.

SOLIDAGO AMPLEXICAULIS T. & G. Fl. N. A. **2**: 218. 1842

Not rare in rich shady woods in Randolph County northwest of Cuthbert, in full bloom on October 21 (*no. 1764*). Not previously reported from Georgia. This species was named in a rather unusual way. The authors when describing it assumed it to be the same as *S. amplexicaulis* Martens,* of which they had seen the name but not the description. Soon afterward † they found that Martens' *S. amplexicaulis* was a synonym of *S. Riddellii* Frank. According to the views held at that time, this necessitated no change in the name of Torrey and Gray's plant, but on the principle of " once a synonym always a synonym," it would have to be changed. This is a case which seems to have escaped the attention of the nomenclature reformers.

BALDWINIA ATROPURPUREA Harper, Bull. Torrey Club, **28**: 483. 1901

At the time I described this species I had some doubts as to its validity, but I have none now. In 1902 I collected it near Moultrie on September 20 (*no. 1644*), and in the next two weeks saw it at many other places in the counties of Colquitt, Worth, Berrien, Irwin and Dooly, always in moist slightly sloping pine-barrens. It grows in wetter places than does *B. uniflora* (but the two species are often found near together), and flowers several weeks later. I find also that its involucral bracts are smaller and more numerous than those of its congener. Also that the stems are usually purplish at the base, and commonly produce more branches (and consequently more heads) than in *B. uniflora*. There is not the slightest possibility of confusing the two species, and it is remarkable that *B. atropurpurea* was overlooked so long.

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* Bull. Acad. Brux. **8**: 66. 1841.

† Fl. N. A. **2**: 504. 1843.

MARSHALLIA RAMOSA Beadle & Boynton, Biltmore Bot. Stud. **1**: 8. *pl. 2.* 1901

In dry pine-barrens and at bases of imperfectly developed sand-hills in Johnson county near Wrightsville. In flower June 16 (*no. 1342*). This seems to be the second collection made of this species. Its corollas are decidedly paler than those of the common species, *M. graminifolia*, being nearly white.

MESADENIA SULCATA (Fernald) Small (*Cacalia sulcata* Fernald)

Collected in wet woods about a mile east of Killen, Clay County, October 29 (*no. 1792*), also seen in similar places in Randolph County south of Cuthbert. The affinity of this species with *Cacalia ovata* Ell. (which may not be the same as *C. ovata* Walt.), to which Mr. Fernald compared it, is rather remote. It is much more closely related to *M. tuberosa* (Nutt.) Britton and *M. Floridana* (Gray) Greene. These three species, *tuberosa*, *sulcata* and *Floridana*, differing from each other principally in range, habitat and shape of leaves, form a small group characterized by grooved or sharply angled stems, plantain-like leaves green on both sides and tapering at the base, and especially by the winged keels of the involucral bracts. This latter character was overlooked by the authors of the two latter species and is very rarely mentioned in descriptions, being inconspicuous in dried specimens. The wings are usually 1–2 mm. broad.

A specimen collected by A. H. Curtiss on "Borders of swamps, Walton County, Florida," in September, probably many years ago (*no. 1560*, distributed as *Cacalia Floridana*), is *Mesadenia sulcata.* In the Biltmore Herbarium there are specimens of it collected at different points in the same county, August 1, 1899, and September 26, 1900.

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